A-96-47
II-B-1

Michael Ciolek
11/29/2000 10:26 AM

To: Jim Eddinger/RTP/USEPA/US@EPA
cc: Fred Thompson/RTP/USEPA/US@EPA, Bill Lamason/RTP/USEPA/US@EPA
Subject: NTTAA memo for Boiler MACT docket

I forgot the attachment. Sorry about that.

Boilmem.wpc
----- Forwarded by Michael Ciolek/RTP/USEPA/US on 11/29/00 10:24 AM -----

Michael Ciolek
11/29/00 09:57 AM

To: Jim Eddinger/RTP/USEPA/US@EPA
cc: Fred Thompson/RTP/USEPA/US@EPA, Bill Lamason/RTP/USEPA/US@EPA
Subject: NTTAA memo for Boiler MACT docket

Jim,

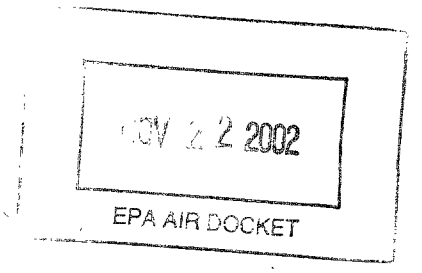
On 11/17/00, I forwarded to you the NTTAA portion of the preamble for your proposal package (Boiler and Process Heaters NESHAP). Enclosed is the memo for the docket that supports the preamble.

I hope you've an opportunity to review the preamble. If you have any comments let me know.

Regarding the enclosed memo, if I don't receive any comments from you by Dec. 11, 2000, I'll have management sign off on it.

Thanks,

Mike C.



MEMORANDUM

SUBJECT: Voluntary Consensus Standard Results for the Industrial, Commercial, and Institutional Boiler and Process Heaters NESHAP Proposed Rule

FROM: William H. Lamason, Group Leader
Source Measurement Technology Group (MD-19)

TO: Bob Wayland, Group Leader
Combustion Group (MD-13)

At your request, the Emission Measurement Center (EMC) conducted searches and reviews to address the National Technology Transfer and Advancement Act (NTTAA) requirements on the use of voluntary consensus standards (VCS). The NTTAA directs EPA to use VCS in regulatory and procurement activities unless to do so would be inconsistent with applicable law or otherwise impracticable. This memorandum documents the results of the EMC searches and reviews to determine if VCS are available and practical for use in lieu of stationary source methods or performance specifications cited in the Industrial, Commercial, and Institutional Boiler and Process Heaters NESHAP Proposed Rule.

Starting in 1998, the EMC began implementing the requirements of the NTTAA by conducting searches to identify VCS. While we have made a reasonable effort to identify and evaluate, potentially practical VCS, our findings do not necessarily represent all potential alternative standards which may exist.

To enhance our opportunities to identify and use VCS, the EMC has other activities in support of NTTAA implementation. The EMC has plans to conduct more thorough, periodic efforts to contact VCS organizations to identify potential alternative methods. We completed our periodic search for FY2000. We plan to update this search in early FY2001.

Also, the EMC participates in the American Society for Testing and Materials (ASTM), which is one of the most active VCS organizations on emissions testing, and has been invited to participate in the USA Technical Advisory Group for International Organization for Standardization (ISO) relating to emissions monitoring. We expect these additional efforts will help us to support a periodic review of all EPA reference methods and performance standards for possible incorporation by reference (IBR) of VCS in lieu of or as alternatives to EPA procedures. We anticipate that these activities will provide an opportunity for further review, consideration

and possible IBR of VCS overlooked in the National Standards Service Network (NSSN) searches or finalized after work group closure in the EPA rulemaking process.

We conducted searches for the Industrial, Commercial, and Institutional Boiler and Process Heaters NESHAP Proposed Rule through the Enhanced NSSN Database managed by the American National Standards Institute (ANSI). Searches were conducted for EPA Methods 1, 2, 2F, 2G, 3A, 3B, 4, 5, 5D, 17, 19, 26, 26A, and 29. Please note the attached tables for the EMC's findings. No VCS were identified for EPA Methods 2F, 2G, 5D, and 19.

The attached tables describe the VCS found, which EPA standard reference method(s)/performance specification(s) the VCS potentially affects, if the VCS is equivalent to the EPA standard reference method/performance specification, and EPA's comments after review of the standard. During the search, if the title or abstract (if provided) of the VCS described technical sampling and analytical procedures that are similar to EPA's reference method/performance specification, the EMC ordered a copy of the standard and reviewed it as a potential equivalent method. All potential standards were reviewed to determine the practicality of the VCS for this rule. This test requires significant method validation data which meets the requirements of EPA Method 301 for accepting alternative methods or scientific, engineering and policy equivalence to procedures in EPA reference methods and performance specifications. The EMC may reconsider determinations of impracticality when additional information is available for particular VCS.

The search identified 21 VCS's that appeared to have possible use in lieu of EPA reference methods/performance specifications. Two consensus standards have been determined appropriate and are being cited in the Industrial, Commercial, and Institutional Boiler and Process Heaters proposal.

The voluntary consensus standard, ASTM D4536-96 "Particulate (Matter) Modified High Volume," is being proposed as an alternative to the sampling equipment and procedures in Methods 5 or 17 in conducting emissions testing of positive pressure fabric filter control devices. The ASTM D4536-96 equipment and procedures would be used in conjunction with the sample traverse and calculations as described in Method 5D for this application. We invite comments on whether including this ASTM standard method is appropriate for this or other applications.

Another standard, ASTM 6522-00, Standard Test Method for the Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers and Process Heaters Using Portable Analyzers has been determined appropriate as a replacemnt for EPA Method 3A and is being cited in this proposal. This standard is technically appropriate for identifying carbon monoxide and oxygen concentrations for this rule. The ASTM standard will be incorporated by reference where appropriate.

After reviewing the available standards, EPA determined that 14 of the 21 candidate consensus standards (ASME PTC-38-80 R85 or C00049, ASTM D3154-91 (1995), ASTM D3464-96, ASTM D3685/D3685M-98, ASTM D3796-90 (1998), ASTM D5835-95, ASTM E337-84, CAN/CSA Z223.1-M1977, CAN/CSA Z223.2-M86 (1986), CAN/CSA Z223.26-M198, EN 1911-1,2,3 (1998), ISO 9096:1992, ISO 10396:1993, ISO 10780:1994) identified for measuring emissions of the HAPs or surrogates subject to emission standards in the rule would not be practical due to lack of equivalency, documentation, validation data and other important technical and policy considerations. These 14 methods are listed in Attachment 1, along with the EPA review comments.

Five of the 19 candidate consensus standards (ASME/BSR MFC 12M, ASME/BSR MFC 13M, ASTM Z6590Z, ISO/DIS 12039 and PREN 13211 (1998)) are new standards under development or standards currently under EPA review that EPA plans to follow, review and consider adopting at a later date. These five methods are listed in Attachment 2, along with the EPA review comments.

Questions regarding the NTTAA representative and EMC representation in ASTM and ISO can be directed to John Bosch at (919) 541-5583. Inquiries regarding the searches for the VCS can be made to Mike Ciolek at (919) 541-4921. Please feel free to contact me at (919) 541-5374 if you have any general questions regarding EMC implementation of the NTTAA or our support to you.

Attachments

cc: John Bosch, EMC (MD-19)
Mike Ciolek, EMC (MD-19)
Fred Dimmick, EMAD (MD-14)
David Mobley, EMAD (MD-14)
Jim Eddinger, ESD (MD-13)
Frederick J. Thompson, EMC (MD-19)

Attachment 1. List of Voluntary Consensus Standards Not Applicable to the Industrial, Commercial, and Institutional Boiler and Process Heaters

SIMILAR EPA STANDARD REFERENCE METHOD	VOLUNTARY CONSENSUS STANDARD	EPA'S COMMENTS ON VOLUNTARY CONSENSUS STANDARD
EPA Methods 1, 2, 3B, 4	ASTM D3154-91 (1995) -Standard Method for Average Velocity in a Duct (Pitot Tube Method)	Appears to cover EPA's Part 60 Methods 1, 2, 2C, 3, 3B, and 4, but lacks in quality control and quality assurance requirements.
EPA Method 2	ISO 10780:1994 - Stationary Source Emissions - Measurement of Velocity and Volume Flowrate of Gas Streams in Ducts	This standard recommends the use of L-shaped pitots, which historically have not been recommended by EPA because the S-type design has large openings which are less likely to plug up with dust.
EPA Method 2	ASTM D3796-90 (1998) - Standard Practice for Calibration of Type S Pitot Tubes	This is a very good detailed procedure for calibrating Type S pitot tubes, but it is not a complete method alternative to EPA Method 2.
EPA Method 2	ASTM D3464-96 - Standard Test Method Average Velocity in a Duct Using a Thermal Anemometer	There is no EPA Method to compare this to. Applicability specifications are not clearly defined (example: range of gas composition, T limits). It appears to have the correct calibration procedures and specifications, but without supporting data. Some of the variability issues were not adequately addressed. EPA cannot call this equivalent to EPA Method 2 without supporting data.
EPA Method 3A	ASTM D5835-95 - Standard Practice for Sampling Stationary Source Emissions for Automated Determination of Gas Concentration.	Similar to EPA Methods 3A, 6C, 7E, 10 ALT 004, CTM 022. Lacks in detail and quality assurance and quality control requirements. Very similar to ISO 10396.

SIMILAR EPA STANDARD REFERENCE METHOD	VOLUNTARY CONSENSUS STANDARD	EPA'S COMMENTS ON VOLUNTARY CONSENSUS STANDARD
EPA Method 3A	ISO 10396:1993 - Stationary Source Emissions: Sampling for the Automated Determination of Gas Concentrations	Similar to EPA Methods 3A, 6C, 7E, 10, ALT 004, CTM 022. Similar to ASTM D5835. Lacks in detail and quality assurance and quality control requirements.
EPA Method 3A	CAN/CSA Z223.2-M86 (1986) - Method for the Continuous Measurement of Oxygen, Carbon Dioxide, Carbon Monoxide, Sulphur Dioxide, and Oxides of Nitrogen in Enclosed Combustion Flue Gas Streams	Too general. This standard lacks in detail and quality assurance/quality control requirements. Appendices with valid quality control information are not a required part of the standard.
EPA Method 4	ASTM E337-84 (Reapproved 1996) - Standard Test Method for Measuring Humidity with a Psychrometer (the Measurement of Wet- and Dry-Bulb Temperatures)	This will only cover a small portion of what is acceptable for EPA Method 4.
EPA Methods 5, 17	ASME PTC-38-80 R85 or C00049 - Determination of the Concentration of Particulate Matter in Gas Streams	Essentially duplicates EPA Methods 5 and 17 but is more flexible (allows more train configurations).
EPA Methods 5, 17	ASTM D3685/D3685M-98 - Test Methods for Sampling and Determination of Particulate Matter in Stack Gases	Similar to EPA Methods 5 and 17, but contains sampling options beyond that which would be considered acceptable for EPA Method 5. Example: past experience indicates Alundum thimble probes leak.

SIMILAR EPA STANDARD REFERENCE METHOD	VOLUNTARY CONSENSUS STANDARD	EPA'S COMMENTS ON VOLUNTARY CONSENSUS STANDARD
EPA Method 5	ISO 9096:1992 - Determination of Concentration and Mass Flow Rate of Particulate Matter in Gas Carrying Ducts - Manual Gravimetric Method.	Some portions of this standard relate to EPA Methods 1 and 2. This standard will not produce particulate matter measurements like EPA Method 5 (example: there is no temperature control on the filter which is exposed to ambient levels). There is no EPA Method to compare this to. EPA cannot approved this standard without supporting data.
EPA Method 5	CAN/CSA Z223.1-M1977 - Method for the Determination of Particulate Mass Flows in Enclosed Gas Streams	This CSA standard is very similar to EPA Method 5. However there are a few key differences. First, while EPA Method 5 refers to EPA Methods 1, 2, 3, and 4 for proper sampling of PM emissions, this Canadian standard attempts to incorporate all these procedures into CSA Z223.1-M1977. Detailed technical procedures and quality control measures that are required in EPA Methods 1, 2, 3, and 4 are not included in CSA Z223.1. Second, CSA Z223.1 does not include in its filter weighing procedures the EPA Method 5 requirement to repeat weighing every six hours until a constant weight is achieved. Third, EPA Method 5 requires the weight to be reported to the nearest 0.1 mg, while CSA Z223.1 requires only weighing to the nearest 0.5 mg. Also, CSA Z223.1 allows the use of a standard pitot for velocity measurement when plugging of the tube opening is not expected to be a problem. Whereas, EPA Method 5 requires an S-shaped pitot (unless an alternative device is approved by the Administrator).

SIMILAR EPA STANDARD REFERENCE METHOD	VOLUNTARY CONSENSUS STANDARD	EPA'S COMMENTS ON VOLUNTARY CONSENSUS STANDARD
EPA Methods 26, 26A	EN 1911-1,2,3 (1998) - Stationary Source Emissions- Manual Method of Determination of HCl-Part 1: Sampling of Gases Ratified European Text-Part 2: Gaseous Compounds Absorption Ratified European Text-Part 3: Adsorption Solutions Analysis and Calculation Ratified European Text	Part 3 of this standard cannot be considered equivalent to EPA Method 26 or 26A. The sample absorbing solution (water) would be expected to capture both HCl and chlorine gas, if present, without the ability to distinguish between the two. EPA Methods 26 and 26A use an acidified absorbing solution to first separate HCl and chlorine gas so that they can be selectively absorbed, analyzed, and reported separately. In addition, the efficiency of absorbing the chlorine gas fraction would be expected to vary as the pH of the absorbing solution changed.
EPA Methods 29	CAN/CSA Z223.26-M1987 - Measurement of Total Mercury in Air Cold Vapour Atomic Absorption Spectrophotometeric Method	This standard is only applicable to background and near ambient levels of mercury (5 - 5,000 ng/m^3) and for low volume air sampling. Quality assurance is limited and/or not well documented.

Attachment 2. List of Voluntary Consensus Standards Not Final and/or Under EPA Review for the Industrial, Commercial, and Institutional Boiler and Process Heaters NESHAP

SIMILAR EPA STANDARD REFERENCE METHOD	VOLUNTARY CONSENSUS STANDARD	EPA'S COMMENTS ON VOLUNTARY CONSENSUS STANDARD
EPA Method 2	ASME/BSR MFC 12M - Flow in Closed Conduits Using Multiport Averaging Pitot Primary Flowmeters	Under development when search was completed. Possibly similar to EPA Method 2.
EPA Method 2 (possibly 1)	ASME/BSR MFC 13M - Flow Measurement by Velocity Traverse	Under development when search was completed. Possibly similar to EPA Methods 1 and 2.
EPA Method 3A	ISO/DIS 12039 - Stationary Source Emissions -Determination of Carbon Monoxide, Carbon Dioxide, and Oxygen - Automated Methods	Under development when search was completed. Possibly similar to EPA Methods 3A and 10.
EPA Methods 29 (portion for mercury only)	prEN 13211 (1998) - Air Quality - Stationary Source Emissions - Determination of the Concentration of Total Mercury	Under development when search was completed. Possibly similar to portions of EPA Methods 101, 101A, and mercury portion of EPA Method 29. Reviewed from draft available for public comment.
EPA Methods 29 (portion for mercury only)	ASTM Z6590Z - Manual Method for Both Speciated and Elemental Mercury	Under development when search was completed. Posted on the EMC Website as Preliminary Method (PRE) 03 - Draft Ontario Hydro Method for Mercury in flue gas generated from coal fired stationary sources. Possibly similar to portions of EPA Methods 101A and Method 29 (portion for mercury only).